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Abstract

COMMERCIAL PRODUCTION OF STABLE ISOTOPES

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The basic experimental data and general technological scheme of the plant's performance are given in the report.

In the first place production of boron and nitrogen isotopes B^{10}, B^{11} and N^{15} was organized.

Two methods are used to produce boron isotopes: low-temperature distillation of boron trifluoride and exchange distillation of its methyl ether complex. Schemes and parameters of columns to produce 25 kg/year of boron-10 are given.

The nitric oxide - nitric acid exchange process is used to separate nitrogen isotopes. Schemes and parameters of columns to produce 4,5 kg/year of nitrogen-15 are given.

System of automatic control is described, which includes a number of special sensing elements, actuating mechanisms and regulators.

In the second place production of isotopes O^{18} and N^{15} will be envisaged by low-temperature distillation of nitric oxide and isotopes Ne^{22}, Ar^{36}, C^{13}, Kr^{86} by diffusion through another gas.

The results of calculations and experimental data are given.

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